

- 32 -

CLAIMS

1. A screen assembly for a shale shaker, the screen assembly comprising a panel (500;800) and a support structure (600;700), the panel (401;500;800) having an area (307) provided with a multiplicity of apertures (504) and at least one layer of screening material (502) arranged over the multiplicity of apertures (504), the panel further comprising at least one support rib (505) characterised in that said panel (500;800) is removable from said support structure (500;800) and wherein at least one member (605,606,518,519;701,801) is arranged between said panel (500;800) and said support structure (600;700) within the perimeter of said panel (500;800) over which said at least one support rib (505) and said panel (500;800) is deflectable, such that at least two spans are defined by said panel (500;800).
2. A screen assembly as claimed in Claim 1, wherein said support structure (600;700) is removable from said shale shaker.
3. A screen assembly as claimed in Claim 1 or 2, wherein said screen assembly is insertable into a clamping mechanism of a shale shaker.
4. A screen assembly as claimed in Claim 3, wherein at least part of said perimeter of said panel (500;800), in use is arranged in said clamping mechanism and is pushed on to said support structure when operated.
5. A screen assembly as claimed in any preceding claim, wherein at least one of said support structure (600;700) and said panel (500;800) comprises said at least one member (605,606,518,519;701,801) over which said panel is deflectable in use.
6. A screen assembly as claimed in Claim 5, wherein said support structure (600;700) comprises a structural support member (605,606;701) and said panel (500;800) comprises a corresponding support member (518,519;801),

- 33 -

which engage to form said at least one member over which said panel is deflectable.

7. A screen assembly as claimed in Claim 6, wherein one of said structural support member (605,606;701) and said support member (518,519;801) has a convex rounded profile and the other has a corresponding concave rounded profile.

8. A screen assembly as claimed in Claim 6 or 7, wherein said structural support member (605,606;701) comprises a bar or tube extending across a substantial portion of said structural support.

9. A screen assembly as claimed in Claim 6, 7 or 8, wherein said support member (518,519;801) comprises a portions having openings therein.

10. A screen assembly as claimed in any of preceding claim, wherein said panel (500;800) is rectangular having a pair of opposing sides and a pair of opposing ends, wherein said part of said perimeter is said two opposing sides.

11. A screen assembly as claimed in Claim 10, wherein said at least one member (605,606,518,519;701,801) is arranged equidistant said two opposing sides and is arranged substantially parallel to said two opposing sides.

12. A screen assembly as claimed in Claim 10, comprising two support members (605,606,518,519) arranged between said two opposing sides and is arranged substantially parallel to said two opposing sides.

13. A screen assembly as claimed in any preceding claim, wherein said structural support (600;700) comprises an outer frame and cross members.

14. A screen assembly as claimed in any preceding claim, wherein said panel (500;800) comprises a perforate plate, said multiplicity of apertures therein.

15. A screen assembly as claimed in Claim 15, wherein

- 34 -

said panel comprises a flat punched plate.

16. A screen assembly as claimed in any preceding claim, wherein said panel (500) comprises a multiplicity of support ribs (505).

5 17. A screen assembly as claimed in Claim 15, wherein said support rib (505) is fixed to said perforate plate (501)

10 18. A screen assembly as claimed in Claim 16, wherein said multiplicity of said support ribs (505) extend across said panel (500).

15 19. A screen assembly as claimed in Claim 18, wherein said perforate plate (501) comprises a series of panel ribs (503a) formed in said perforate plate (501), said support ribs (505) aligned with and underneath said panel ribs (503a).

20. A screen assembly as claimed in any preceding claim, wherein said panel (500) comprises folded portions (508,509,511,512).

20 21. A screen assembly as claimed in Claim 20, wherein said folded portions (508,509,511,512) are perimeter portions.

22. A screen assembly as claimed in Claim 20 or 21, wherein folded portions form said apertures.

25 23. A screen assembly as claimed in any preceding Claim, wherein said at least one layer of screening material (502) is adhered to at least a portion of said panel (500).

30 24. A screen assembly as claimed in any preceding Claim, wherein said panel (500) has side portions (508,509), which are not provided with apertures.

25. A screen assembly as claimed in Claim 24, wherein said at least one layer of screening material (502) is adhered to said side portions of said panel.

35 26. A screen assembly as claimed in any preceding claim, wherein said at least one layer of screening material

- 35 -

(502) is adhered to said area provided with apertures.

27. A screen assembly as claimed in any preceding claim, further comprising a second layer of screening material of substantially the same mesh size.

5 28. A screen assembly as claimed in any preceding claim, further comprising a coarse mesh backing screen between said at least one layer of screening material and said panel.

10 29. A screen assembly as claimed in any preceding claim, wherein said support structure comprises a plurality of support ribs on which, in use the panel is pushed on to.

30. A screen assembly as claimed in Claim 29, wherein said support structure has a crowned profile and said panel is pushed down over the support structure by a clamping mechanism at an outer perimeter of the panel.

15 31. A screen assembly as claimed in any preceding claim, wherein said panel is flexible.

32. A screen assembly as claimed in Claim 31, wherein said at least one layer of screening material is tensioned over said panel wherein tension in said at least one layer of screening material is held by the panel.

20 33. A screen assembly as claimed in Claim 32, wherein the panel does not bend under then tension in said at least one layer of screening material.

25 34. A shale shaker comprising a screen assembly as claimed in any of Claims 1 to 33, the shale shaker further comprising a basket, a vibratory mechanism and a clamping mechanism (654,655;754,755) for fixing the screen assembly to the basket.

30 35. A shale shaker as claimed in Claim 34, wherein said clamping mechanism (654,655;754,755) firmly fixes the panel (500;800) to the support structure (600;700).

35 36. A shale shaker as claimed in Claim 34 or 35, wherein said clamping mechanism comprises a pneumatic means.

- 36 -

37. A shale shaker as claimed in Claim 36, wherein said pneumatic means comprises a pneumatic hose.

38. A method for fitting a screen assembly in a shale shaker, the screen assembly comprising a panel having at least one layer of mesh thereon and a support structure, the panel further comprising at least one support rib arranged, the method comprising the steps of inserting the screen assembly into a clamping mechanism of a shale shaker, operating the clamping mechanism wherein at least part of a perimeter of said panel of said screen assembly is pushed down over at least one member arranged within the perimeter of the panel such that the at least one support rib and the panel is deflected over the at least one member to define at least two spans.